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Cotton variety tests in Louisiana, 1951-55: varieties recommended for the four producing areas of Louisiana

F W. Self

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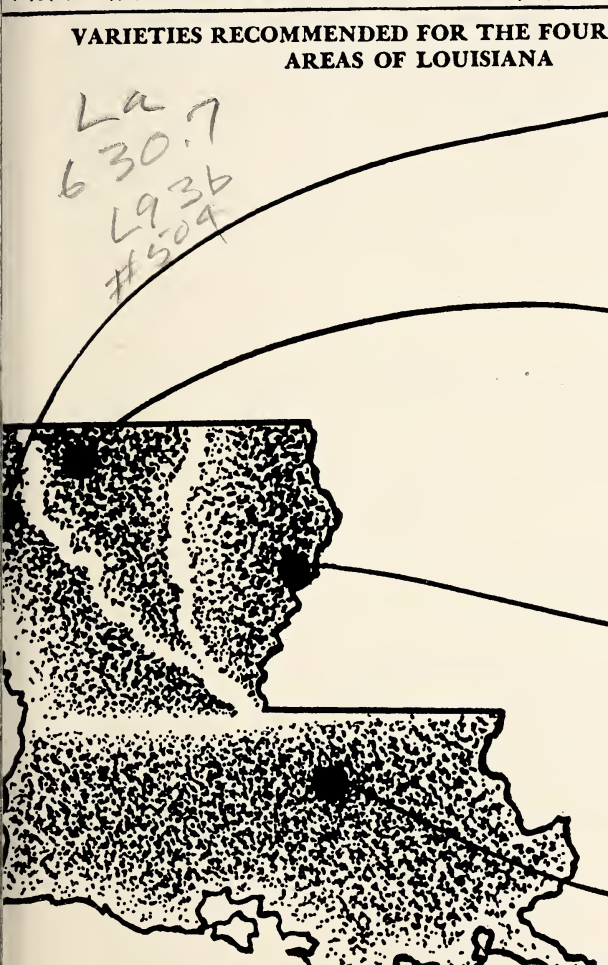

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SUMMARY

Averages of yield and other characteristics for cotton varieties and new strains tested at five locations in Louisiana during the five-year period 1951-55 are presented.

The over-all lint per acre averages of nine commercial varieties of cotton that have been tested for five years at Baton Rouge and St. Joseph and four years at Bossier City, Calhoun and Homer, Louisiana (Table 19), rank them in the following order: Fox, Plains, Deltapine 15, Delfos 9169, Stoneville 5A-3202, Empire, Coker 100 WR, Stoneville 2B and Bobshaw 1-A. The leading varieties at Baton Rouge were Coker 100 WR, Fox, Deltapine 15, Plains and Stoneville 5A-3202; at St. Joseph the leading varieties were Stoneville 5A-3202, Deltapine 15, Delfos 9169, DES 7343 and Plains; and at Calhoun the leading varieties were Fox, Plains, Stoneville 2B, Stoneville 5A-3202 and Empire. Differences in averages for lint per acre at Bossier City were significant only in 1955.

RECOMMENDED COTTON VARIETIES FOR LOUISIANA

On the basis of results obtained, the following commercial varieties are recommended for Louisiana.

Northwestern	*Northern*	*Northeastern*	*Southern*
Fox	Fox	Stoneville 5A-3202	Coker 100 WR
Delfos 9169	Empire	Deltapine 15	Fox
Empire	Plains	Delfos 9169	Deltapine 15
Deltapine 15	Stoneville 5A-3202	Plains	Plains
Plains	Deltapine 15	Fox	Stoneville 5A-3202
Stoneville 5A-3202	Delfos 9169	Coker 100 WR	
Coker 100 WR	Stoneville 2B		

A new variety, Stardel, tested as Louisiana DS 524-9, has been developed by the Louisiana Agricultural Experiment Station. It has performed better than Deltapine 15, Fox or Delfos 9169 in both yield and strength. Foundation seed of Stardel was released for 1956. A detailed description of Stardel and information on its performance are given in Louisiana Experiment Station Bulletin 503, "Stardel, a New Cotton Variety."

Cotton Variety Tests in Louisiana, 1951-55

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INTRODUCTION

New and leading cotton varieties have been tested in Louisiana for a number of years. At certain periods or intervals summaries or reports are prepared in order that one may compare the behavior of current varieties. Since cotton breeders are continually making improvements in varieties and strains, tests are needed every year so that the changes or trends may be evaluated. Because of the nature of cotton plants and the variable environmental conditions, the summaries include only varieties that have been tested for five years. This length of time affords an opportunity to interpret current variety behavior. Some data for varieties that have been tested less than five years are presented in Tables 3, 6, 10, 15 and 18. The yield of lint for years in which the varieties were grown and the estimated comparable corrected averages of yield of lint are also presented. The new strains test averages cover a period of three years at St. Joseph and Bossier City, Louisiana. The detailed variety and new strains test results have been published in the preliminary mimeograph reports of the Crops and Soils Department for 1951-1955.

The estimated* average acre yield of lint in Louisiana for the past five years was 415 pounds of lint per acre. The general trend in Louisiana has been toward more lint per acre on fewer acres.

PROCEDURE FOR COTTON VARIETY TESTING IN LOUISIANA

The yield of seed cotton was based on the mean weight from six replications of single-row plots approximately 100 feet in length at each location, with the exception of the commercial variety and mechanization tests at Bossier City, which were four rows wide and approximately 445 feet in length. Lint percentage was determined by ginning two 100-boll samples from each variety on a small roller gin.

The boll size determinations were obtained from 100-boll samples. The staple length measurements were obtained from a 10-pound sample of each variety after it had been ginned on a small saw gin. The grade determinations for the variety and mechanization tests at Bossier City were obtained from a regular gin sample. The fiber length and grade

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*_The Cotton Situation_, United States Department of Agriculture, Agricultural Marketing Service.

classifications were made by Luther Rone, Harvey B. Martin and their associates of the Production and Marketing Administration Cotton Classing Office in Alexandria, Louisiana.

The planting, cultivating and harvesting of the cotton variety tests located at the State Experiment Stations were supervised by J. A. Hendrix, J. Y. Oakes, R. S. Woodward, D. M. Johns and F. W. Self. The auhors are indebted to L. L. McCormick, G. E. Wilcox, D. R. Melville, C. N. Bollich, J. E. Jones and C. B. Haddon for their assistance in conducting these tests.

The seed used in these cotton variety tests were obtained from the following sources:

Ambassador 569—Stoneville Pedigreed Seed Company, Stoneville, Miss.
Auburn 56—Alabama Agricultural Experiment Station, Auburn, Ala.
Bobshaw 1-A—Bobshaw Seed Company, Indianola, Miss.
Cobal—U. S. Cotton Field Station, Knoxville, Tenn.
Coker 100 WR 5—Coker's Pedigreed Seed Company, Hartsville, S. C.
Coker 100 Staple—Coker's Pedigreed Seed Company, Hartsville, S. C.
Coker 4 in 1—Coker's Pedigreed Seed Company, Hartsville, S. C.
Deltapine 33 (Hale)—G. A. Hale, Burdette, Ark.
Deltapine 15—Delta and Pine Land Company, Scott, Miss.
Delfos 9196—Stoneville Pedigreed Seed Company, Stoneville, Miss.
Delfos 9169-1325, 1348—Northeast Louisiana Experiment Station, St. Joseph, La.
Delfos 444 x Deltapine 1-4—Northeast Louisiana Experiment Station, St. Joseph, La.
Delta Pride—Bobshaw Seed Company, Indianola, Miss.
Deltapine Staple—Delta and Pine Land Company, Scott, Miss.
DES 7343, 8274—Delta Branch Experiment Station, Stoneville, Miss.
Empire—Empire Pedigreed Seed Company, P. O. Box 7, Haralson, Ga.
Early Fluff—Georgia Coastal Plain Experiment Station, Tifton, Ga.
E. H. 806 Long Staple—W. H. Jenkins, Pee Dee Experiment Station, Florence, S. C.
Fox—Delta and Pine Land Company, Scott, Miss.
Louisiana 33—Louisiana Agricultural Experiment Station, Baton Rouge, La.
Louisiana 33 x 14—Louisiana Agricultural Experiment Station, Baton Rouge, La.
Louisiana DS strains—Louisiana Agricultural Experiment Station, Baton Rouge, La.
Miller A—Mississippi State College, State College, Miss.
Northern Star—Wacona Seed Farm, Waco, Tex.
Pandora—Georgia Coastal Plain Experiment Station, Tifton, Ga.
Paula 20, 40—Deering Farm Incorporated, Deering, Mo.
Plains—Alabama Agricultural Experiment Station, Auburn, Ala.
Stardel—Louisiana Agricultural Experiment Station, Baton Rouge, La.
Stoneville 2B, 7—Stoneville Pedigreed Seed Company, Stoneville, Miss.
Stoneville 5A—Stoneville Pedigreed Seed Company, Stoneville, Miss.
Stoneville 62—Oklahoma Agricultural Experiment Station, Stillwater, Okla.
Smith 78—McQueen Smith Farms, Prattville, Ala.
Stoneville Z106—Delta Branch Experiment Station, Stoneville, Miss.
Stonewilt—W. W. Wannamaker, St. Mathews, S. C.
Wacona—Wacona Seed Farms, Waco, Tex.
Wilds—Coker's Pedigreed Seed, Hartsville, S. C.
Tidewater x 45-210-515—Northeast Louisiana Experiment Station, St. Joseph, La.

Each test received the fertilizer treatment recommended for the area and normal cultivation for good crop growth. Each year the cotton boll weevil was present in sufficient numbers to require a regular dusting or spraying program. In 1955, the boll weevil control program at Bossier City and St. Joseph, Louisiana was hampered by excessive rainfall during July and August (Tables 4 and 8). It was also noted that excessive rainfall during June, July and August frequently has a depressing effect upon the yield per acre of varieties in the rich river-bottom soils of Louisiana.

RESULTS FROM VARIETY TESTS

The mean yields of the varieties at each station have been summarized in Tables 2, 5, 7, 9, 11, 14 and 17.

Tables 3, 6, 10, 15 and 18 present a summary of mean yields for the varieties, the years grown, and comparable relative mean lint yields of varieties that were not grown each year. The comparable yields of those varieties were obtained as illustrated at the bottom of Tables 3, 6, 10, 15 and 18.* The correction factors were obtained from the mean acre yields of the varieties that were grown in the period of years observed. This correction was determined in the equation: $\overline{X} - XY = C$, where $\overline{X}$ is the grand average of the varieties that have been grown every year in the period of years summary, XY is the mean of the Yth year, and C is the correction factor. The correction factor for each year was then added, algebraically, to the yield values for all varieties within that year. This gives a set of estimated comparable yields, as shown in Tables 3, 6, 10, 15 and 18.

SOUTH LOUISIANA TESTS

F. W. Self

Cotton Variety Averages of Tests, 1951-55, Baton Rouge, La.

The tests at Baton Rouge were conducted at the Perkins Road Farm of the Louisiana Agricultural Experiment Station located three miles east of Baton Rouge, La. The tests were conducted on Olivier silt loam in 1951 through 1954 and on Foley silt loam in 1955. The tests received 600 pounds of 6-8-8 fertilizer and 100 pounds of sodium nitrate as a side-dressing each year. Nematodes were controlled in 1954 and 1955 by the application of ethylene dibromide W 85 three weeks before planting the experimental plots.

East Baton Rouge Parish receives annually, as an average, 59.29 inches of rainfall. Forty-five per cent of this total amount falls, as an average, during the months of April through August. For the five-month period, the Baton Rouge rainfall was 46 per cent below average in 1951;

*Patterson, R. E., "A Method of Adjusting for Calculating Comparable Yields in Variety Tests," *Agronomy Journal*, 42:509-511, 1950.

TABLE 1.—Rainfall data, April through August, at Baton Rouge, La., 1951-55

Year	Months					Total 5-month departure
	April	May	June	July	August	
1951	2.23	1.07	2.32	7.44	1.42	—12.34
1952	5.84	7.42	1.58	6.29	2.42	— 3.27
1953	6.63	10.70	2.71	5.45	6.04	+ 5.35
1954	1.94	5.81	2.93	6.75	1.55	— 7.20
1955	8.35	4.20	3.53	6.19	3.63	— .01
Monthly Average	4.39	5.31	4.77	6.84	5.51	

12.2 per cent below average in 1952; 19.9 per cent above average in 1953; 26.8 per cent below average in 1954; and .01 per cent below average in 1955.

The tests were planted on April 25, 1951; May 5, 1952; May 11, 1953; April 22, 1954; and May 3, 1955. Two plants per hill were spaced approximately 16 inches apart in the row.

TABLE 2.—Five-year averages for cotton varieties tested on the Louisiana Agricultural Experiment Station, Perkins Road Farm, Baton Rouge, La., 1951-55

Variety	Yield in pounds of lint per acre					Five-year average			
	1951	1952	1953	1954	1955	Lint per acre	Lint per cent	Staple length in 1/32"	No bolls per pound
Coker 100 WR	499	715	625	888	569	659	36.8	34	71
Fox	499	683	698	741	655	655	37.1	34	83
Deltapine 15	489	612	555	732	844	646	39.8	34	79
Plains	485	724	691	749	553	641	37.0	34	74
Stoneville 5A-3202	482	701	650	734	590	631	38.1	34	78
DES 7343	481	551	515	704	871	625	39.6	34	79
Delfos 9169	482	615	418	748	715	596	36.5	35	69
Empire	548	549	585	796	407	577	37.2	34	62
Stoneville 2B	480	510	551	764	522	565	36.3	34	69
Bobshaw 1-A	450	642	559	637	517	561	36.8	33	82
Mean lint per acre	490	630	585	749	624	616			
Difference for significance	*	95	87	*	100	45			

The six varieties Coker 100 WR, Fox, Deltapine 15, Plains, Stoneville 5A-3202 and DES 7343 were the highest yielding, as an average, of the ten in the five-year comparison. These varieties differed in certain other characteristics. Coker 100 WR and Plains were resistant to fusarium wilt, whereas Deltapine 15, Fox and DES 7343 produced, on an average, smaller bolls than the other four varieties.

In the group of varieties that were grown for a portion of the five years, La. DS 5349405, Coker 100 WR 1952 BRS, La. DS 518-12, La. DS 542-9, La. DS 5240-5 and La. DS 533749 yielded very well. The estimated corrected mean yield comparison was prepared to facilitate comparison of certain varieties and new strains that were not grown each year.

TABLE 3.—Mean yield by years and estimated adjusted* average acre yield of lint of cotton varieties grown less than five years on the Louisiana Experiment Station, Perkins Road Farm, Baton Rouge, La., 1951-55

Variety	Yield in pounds of lint per acre							Average		
	1951	1952	1953	1954	1955	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	No. bolls per pound
Correction factors	+126	−15	+31	−133	−9					
Louisiana DS 5349405	....	....	....	....	807	807	798	38.1	34	77
Coker 100 WR 1952 BRS	....	736	....	....	....	736	721	37.3	35	69
Louisiana DS 524-9	....	....	....	799	776	788	717	39.6	34	87
Deltapine Staple	....	....	....	....	726	726	717	36.3	34	70
Louisiana DS 518-3	....	....	....	....	718	718	709	36.3	34	77
Louisiana 33 x 14	....	....	....	837	707	772	701	40.2	34	78
Louisiana DS 523-9	....	....	....	736	794	765	694	37.2	34	77
Louisiana DS 5240-5	....	....	....	770	746	758	687	39.8	33	84
Louisiana DS 533749	....	....	....	....	692	692	683	39.5	33	68
Louisiana DS 518-12	....	....	....	737	742	740	668	40.4	32	83
Stonewilt	493	723	....	....	....	608	664	36.4	34	74
Louisiana 33	511	689	664	....	....	600	656	38.2	34	76
Early Fluff	530	....	....	....	....	530	656	38.6	34	78
Smith 78	523	....	....	....	....	523	649	37.7	35	76
Hybrid 56-4-M	491	....	....	....	....	491	617	37.4	34	75
Delfos 8274	....	523	....	....	....	523	616	37.0	35	79
Delfos 9169-1348	500	....	....	725	....	613	609	37.8	34	79
Paula 40	474	....	....	....	....	474	600	39.8	34	72
Pandora	467	....	....	....	....	467	593	38.2	34	70
Stoneville 2B-5235	453	....	....	....	....	453	579	37.4	34	70
Louisiana DS 5219-2	....	....	....	....	574	574	565	38.7	33	72
Louisiana DS 523-7	....	....	....	682	559	621	550	38.1	34	88
Coker 100 Staple	461	494	545	....	....	500	547	36.2	36	77
Delta Pride	418	....	....	....	....	418	544	35.0	36	73
Paula 20	410	....	....	....	....	410	536	36.4	35	69
Miller A	426	501	....	....	....	464	519	37.6	33	72
Dixie King	....	....	....	....	500	500	491	36.1	34	59
Auburn 56	....	....	....	....	493	493	484	35.0	34	68

*Estimated adjusted mean yield. The average yield of Louisiana DS 524-9, for example, was obtained as follows: (799 - 133) + (776 - 9) /2 = 717.

NORTHEAST LOUISIANA TESTS

J. A. Hendrix, *Superintendent*

Cotton Variety and New Strain Averages for Tests, 1951-55, St. Joseph, La.

These tests were conducted on the Northeast Louisiana Experiment Station located approximately three miles north of St. Joseph, La. The soil in the test area was Commerce silt loam of dark brownish gray Mississippi River bottom phase. The cotton variety tests were rotated so as to follow soybeans. In 1951, 290 pounds of ammonium sulfate was applied deep in the furrow and bedded on two weeks before planting time. In 1952, 168 pounds of ammonium nitrate was applied April 9 deep in the furrow and bedded on; in 1953, 200 pounds of ammonium nitrate was applied April 14 and bedded on; in 1954, 75 pounds of nitrogen was bedded on April 15; in 1955, 75 pounds of nitrogen was applied to the test area and bedded on March 23.

St. Joseph receives annually, as an average, 21.79 inches of rainfall, or 42.2 per cent of its annual rainfall, during the five months April through August. In 1951, the rainfall was approximately 10.86 inches below average; in 1952, 10.68 inches below average; in 1953, 7.91 inches above average; in 1954, 0.15 inches below average; and in 1955, 2.81 inches above average.

TABLE 4.—Rainfall data, April through August, at St. Joseph, La., 1951-55

Year	Months					Total 5-month departure
	April	May	June	July	August	
1951	2.81	0.71	3.80	2.70	0.91	−10.86
1952	2.86	5.55	0.09	1.72	0.89	−10.68
1953	8.89	15.29	0.71	1.86	2.95	+ 7.90
1954	4.02	10.59	2.00	4.56	1.14	− 0.15
1955	7.30	5.80	0.49	7.08	4.60	+ 2.81
Monthly Average	5.47	4.30	3.85	4.86	3.31	

The rainfall data at this station indicate that average or above average rainfall fell during April and May but slightly below average during July and August except in 1955, in which year the monthly averages were above average.

The tests were planted on April 26, 1951; on April 29, 1952; on May 9, 1953; on April 27, 1954; and on April 27, 1955.

Stoneville 5A-3202, Deltapine 15, Delfos 9169, DES 7343, Plains and Fox were the leading varieties, as an average, of the ten varieties in the five-year comparison.

In the group of varieties that were grown less than five years, it may be observed from the estimated mean adjusted yields that Dortch 4106,

TABLE 5.—Five-year averages for cotton varieties tested on the Northeast Louisiana Experiment Station, St. Joseph, 1951-55

Varieties	Yield in pounds of lint per acre					5-year average			
	1951	1952	1953	1954	1955	Lint per acre	Lint per cent	Staple length in 1/32"	No. bolls per pound
Stoneville 5A-3202	1060	922	1190	1214	1073	1091	37.4	35	73
Deltapine 15	1168	905	1016	1200	1106	1079	39.3	35	72
Delfos 9169	1076	961	1204	1146	981	1073	35.0	36	62
DES 7343	1086	990	1162	1178	924	1068	39.1	36	73
Plains	1057	911	1082	1146	1075	1054	36.2	35	65
Fox	1106	806	1065	1111	950	1007	36.0	35	78
Bobshaw 1-A	935	835	1140	1109	909	985	36.7	35	74
Coker 100 WR	1048	825	1035	1081	857	969	35.0	35	69
Stoneville 2B	1002	844	999	1121	827	958	35.0	35	63
Empire	903	818	1134	1012	832	939	35.3	35	59
Mean lint per acre	1004	882	1103	1132	953	1022			
Difference for Significance	80	94	74	*	89	48			

*Difference not significant.

Coker 100-52-27, Stoneville 7, Coker 100 51-24-LH, Deltapine 33 (Hale), Louisiana DS 524-9, Deltapine 8389-D and Ambassador No. 569 performed well on the average at this station (Table 6).

TABLE 6.—Mean yields by years and estimated adjusted* average acre yield of lint of cotton varieties grown less than five years on the Northeast Louisiana Experiment Station, St. Joseph, La., 1951-55

Variety	Yield in pounds of lint per acre							Average		
	1951	1952	1953	1954	1955	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	No. bolls per pound
Correction factors	− 21	+141	− 79	−109	+ 70					
Dortch 4106	....	....	....	....	1104	1104	1174	39.1	35	66
Coker 100 52-27	....	....	....	....	1103	1103	1173	36.4	35	61
Stoneville 7	....	....	....	....	1074	1074	1144	38.7	34	67
Coker 100 51-24-LH	....	....	....	1257	1022	1140	1120	37.1	35	65
Deltapine 33 (Hale)	978	....	....	....	....	978	1119	40.9	34	76
Louisiana DS 524-9	....	....	....	1256	1006	1131	1112	39.4	35	73
Deltapine 8389-D	1074	....	....	....	1097	1086	1110	37.9	34	70
Ambassador 569	968	....	....	....	....	968	1109	34.7	33	59
Delfos 9169-3316	1116	....	....	....	....	1116	1095	32.9	38	63
Louisiana 33 x 14	....	....	1229	1145	....	1187	1093	39.8	34	72
Delfos 8274	1146	910	....	....	....	1082	1088	37.7	36	77
Dixie King	....	....	....	....	1015	1015	1085	36.1	35	50
Stoneville 2B-7398	....	921	....	....	....	921	1062	36.6	35	67
Coker 100 51-18	....	....	....	1169	....	1169	1060	37.1	36	72
Stoneville Z 106	....	915	....	....	....	915	1056	37.1	34	67
Coker 100 50-39	....	....	1134	....	....	1134	1055	35.5	36	73
Paula 40	1060	....	....	....	....	1060	1039	36.6	35	63
Coker 100 50-81	....	....	1117	....	....	1117	1038	36.1	35	63
Deltapine Staple	....	....	....	....	963	963	1033	36.5	36	64
Coker 100 51-30	....	....	....	1138	....	1138	1029	36.4	35	69
Stoneville 2B-5235	1046	....	....	....	....	1046	1025	33.2	36	67
Louisiana 33	1029	929	1066	....	....	1008	1022	36.1	34	72
Coker 100 51-55	....	....	....	1119	....	1119	1010	36.0	35	64
Northern Star	....	....	....	1108		1108	999	36.2	34	56
Auburn 56	1030	861	....	1191	827	977	998	34.7	36	70

(*Continued*)

TABLE 6 (Continued).—Mean yields by years and estimated adjusted* average acre yield of lint of cotton varieties grown less than five years on the Northeast Louisiana Experiment Station, St. Joseph, La., 1951-55

Variety	Yield in pounds of lint per acre							Average		
	1951	1952	1953	1954	1955	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	No. bolls per pound
Stonewilt	1011	....	....	....	....	1011	990	33.2	37	71
Wacona	....	....	....	1073	....	1073	964	36.6	34	61
Coker 100-50-3987	....	....	....	1070	....	1070	961	35.2	35	68
Coker 100 Staple	1030	739	1069	....	....	946	960	33.9	36	72
Coker 4 in 1-143	977	....	....	....	....	977	956	32.9	37	70
Coker 100 49-196 RH	....	....	....	1046	903	975	955	34.4	35	69
Delfos 9169-1348	....	....	1052	1075	853	993	954	35.0	36	60
Stoneville 5A-8809	....	811	....	....	....	811	952	37.1	35	72
Coker 100 WR 1953 BRS	....	808	....	....	....	808	949	35.5	34	71
Delfos 9169-1325	....	....	1013	....	....	1013	934	35.3	35	69
Paula 20	952	....	....	....	....	952	931	32.1	36	61
Smith 78	946	....	....	....	....	946	925	32.3	37	69
Miller A	1046	681	....	....	....	864	924	35.6	33	67
Delfos 44 x Deltapine 1-4	939	....	....	....	....	939	918	32.8	37	77
Deltapine 8387 C-54-62-72	....	....	997	....	....	997	918	36.4	34	84
Cobal	923	....	....	....	....	923	902	32.5	37	58
Pandora	923	....	....	....	....	923	902	32.6	36	63
Delta Pride	855	809	....	....	....	832	892	32.4	37	72
Coker 100 52-36	....	....	....	....	780	780	850	35.3	35	64
Wilds	832	646	....	....	....	739	799	30.9	38	73
Tidewater x 45-210-515	817	....	....	....	....	817	796	31.5	37	75
E. H. 806 Long Staple	781	632	....	....	....	706	766	31.9	42	73

*Estimated Adjusted Mean Yields. The average acre yield of Louisiana 33 x 14 for example, was obtained as follows: (1229-79) + (1145-109) /2 = 1093.

TABLE 7.—Three-year averages for new strains tested on the Northeast Louisiana Experiment Station, St. Joseph, La., 1953-55

Variety	Yield in pounds of lint per acre			3-year average			
	1953	1954	1955	Lint per acre	Lint per cent	Staple length in 1/32"	No. bolls per pound
Louisiana DS 524-9....	1216	1187	1200	1201	39.8	35	80
Louisiana DS 518-12 ..	1295	1146	1153	1198	41.5	34	77
Louisiana DS 517-39 ..	1203	1111	1276	1196	39.6	34	72
Louisiana DS 518-8 ..	1212	1198	1142	1184	39.0	34	69
Louisiana DS 5219-2 ..	1236	1130	1035	1134	38.1	34	72
Louisiana DS 5216-10 ..	1199	1079	1118	1132	40.2	34	70
Fox	1108	1076	1210	1131	36.8	35	77
Deltapine 15	1026	1077	1263	1122	39.4	35	75
Louisiana DS 523-9	1076	1031	1207	1100	37.6	34	72
Louisiana DS 523-7	1100	975	919	999	37.5	34	83
Mean lint per acre ..	1166	1101	1152	1140			
Difference for Significance	103	91	170	75			

The new-strains tests were conducted in the same manner as the commercial varieties test.

Louisiana DS 524-9, Louisiana DS 518-12, Louisiana DS 517-39, Louisiana DS 518-8, Louisiana DS 5219-2, Louisiana DS 5216-10 and Fox were the leading new strains in this three-year experiment.

NORTHWEST LOUISIANA TESTS

J. Y. Oakes, *Superintendent*

Cotton Variety Averages of Tests, 1951-55, Curtis, La.

The tests at Curtis were conducted on the Red River Valley Experiment Station approximately eight miles south of Curtis, La. The soil type is Yahola very fine sandy loam-Red River bottom soil. The tests received 40 pounds of nitrogen per acre in 1951; 65 pounds of nitrogen per acre in 1952; 65 pounds of nitrogen per acre in 1954; and 60 pounds of nitrogen per acre in 1955.

The Bossier City area receives annually, as an average, 44 inches of rainfall. The area received approximately 19.43 inches during the five months April through August. The area received approximately 49 per cent below average in 1951; .02 per cent below average in 1952; 31 per cent above average in 1953; 12 per cent below average in 1954; and 66 per cent above average in 1955 during these five months.

The average rainfall at this station was below average during the five-month period for three of the four years. The extremely hot dry weather in July and August in 1954 reduced the over-all average yield of all varieties and new strains at this station.

The tests were planted on May 1, 1951; on May 1, 1952; on May 18, 1954; and on April 26 in 1955.

TABLE 8.—Rainfall data, April through August, Bossier City, La., 1951-55

Year	Month					Total 5-month departure
	April	May	June	July	August	
1951	1.82	1.10	2.81	3.30	0.47	− 9.11
1952	5.34	6.71	0.74	4.26	1.11	− 0.45
1953	9.82	8.35	1.30	3.03	1.22	+ 5.87
1954	3.93	7.94	1.88	1.01	0.92	− 2.17
1955	4.78	9.64	2.67	6.17	6.83	+12.24
Monthly average	4.63	4 22	3.50	3.56	2.70	

TABLE 9.—Four-year averages of cotton varieties tested on the Red River Valley Experiment Station, Curtis, La., 1951-55

Variety	Yields in pounds of lint per acre				4-year average			
	1951	1952	1954	1955	Lint per acre	Lint per cent	Staple length in 1/32"	No. bolls per pound
Fox	754	1145	259	953	778	35.8	34	83
Delfos 9169	849	1195	260	773	769	34.4	35	68
Empire	645	1205	214	830	724	35.8	34	63
Deltapine 15	687	990	275	815	692	38.4	34	75
Plains	630	1184	239	690	686	35.8	34	70
Coker 100 WR	631	1223	236	570	665	34.0	35	71
Stoneville 2B	668	1076	166	698	652	34.6	34	70
Mean lint per acre	695	1145	236	761	709			
Difference for significance	*	*	*	75	*			

*Difference not significant.

TABLE 10.—Mean yield by years and estimated adjusted* average acre yield of lint of cotton varieties grown less than four years on the Red River Valley Experiment Station, 1951-55

Variety	Yield in pounds of lint per acre						Average		
	1951	1952	1954	1955	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	No. bolls per pound
Correction factors ..	+ 15	−436	+473	− 52					
DES 8274	746	1245	....	....	996	785	37.7	34	72
DES 7343	....	1195	264	834	764	759	37.4	34	78
Louisiana DS 524-9 ..	....	....	243	835	539	750	38.4	34	88
Stoneville 62-84	....	1184	....	....	1184	748	37.1	34	71
Louisiana DS 518-3 ..	....	....	274	....	274	747	37.0	32	84
Early Fluff	698	....	....	....	698	713	34.5	34	75
Deltapine 15-8129 ..	....	1147	....	....	1147	711	38.5	34	75
Delfos 9169-1348	....	....	236	....	236	709	34.9	34	75
Deltapine 8389-A	719	1113	....	....	916	706	39.4	34	76
Dixie King	....	....	....	745	746	694	35.1	34	61
Delfos 9169-3316	677	....	....	....	677	692	34.7	36	70
Louisiana 33 x 14 ..	....	....	241	716	478	689	38.4	34	88
Louisiana DS 523-7 ..	....	....	215	....	215	688	36.1	34	83
Bobshaw 1-A	556	1157	....	798	840	683	35.1	34	78
Louisiana DS 523-9 ..	....	....	209	....	209	682	36.7	33	77
Delfos 8306	666	....	....	....	666	681	39.6	35	81
Coker 100 Staple	614	1163	....	....	888	678	34.3	35	73

(*Continued*)

TABLE 10 (Continued).—Mean yield by years and estimated adjusted* average acre yield of lint of cotton varieties grown less than four years on the Red River Valley Experiment Station, 1951-55

Variety	Yield in pounds of lint per acre						Average		
	1951	1952	1954	1955	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	No. bolls per pound
Stoneville 5A-3202 ..	592	1111	....	801	835	677	36.7	34	76
Deltapine 15-759	....	1111	....	....	1111	675	38.2	34	66
Paula 40	617	....	....	....	617	632	36.1	34	65
Miller A	581	1099	....	....	840	630	36.6	34	66
Louisiana 33	548	1045	241	....	611	629	36.4	34	74
Auburn 56	697	....	....	688	692	624	34.1	34	74
Smith 78	600	....	....	....	600	615	34.0	35	75
Paula 20	600	....	....	....	600	615	33.6	35	67
Stoneville Z 106	...	1040	....	....	1040	604	34.7	34	63
Stoneville 2B-5235 ..	585	....	....	....	585	600	34.2	35	67
Stonewilt	572	....	....	....	572	587	34.0	34	73
Deltapine 14-312	570	....	....	....	570	585	38.7	34	86
Cobal	537	....	....	....	537	552	34.0	34	67
Pandora	504	....	....	....	504	519	33.7	34	75
Wilds	493	....	....	....	493	508	29.8	40	72
E.H. 806 Long Staple	482	....	....	....	482	497	31.4	39	77
Tidewater X45-210-515	472	....	....	....	472	487	30.6	39	89
Deltapride	471	....	....	....	471	486	31.3	36	71

*Estimated adjusted mean yields. The average acre yield of DES 8274, for example, was obtained as follows: (746 + 15) + (1245 − 436) /2 = 785.

TABLE 11.—Three-year averages of new strains tested on the Red River Valley Experiment Station, Curtis, La., 1953-55

Variety	Yield in pounds of lint per acre			3-year average			
	1953	1954	1955	Lint per acre	Lint per cent	Staple length in 1/32"	No. bolls per pound
Louisiana DS 524-9	1256	372	884	837	38.6	34	82
Louisiana DS 518-9	1256	347	863	822	38.0	34	77
Louisiana DS 5219-2	1176	255	786	739	36.2	33	74
Louisiana DS 518-12	1000	301	913	738	39.1	33	78
Deltapine 15	891	240	863	665	38.0	34	79
Fox	780	293	842	638	34.7	34	83
Louisiana DS 5240-5	784	215	870	623	37.2	34	80
Mean lint per acre	1020	289	860	723			
Difference required for Significance	173	*	*	91			

*Difference not significant.

The new-strains tests were conducted in the same manner as the commercial varieties test.

Louisiana DS 524-9 and Louisiana DS 518-9 were the leading new strains in this three-year study and yielded significantly more lint per acre than Deltapine 15 or Fox, the commercial checks.

TABLE 12.—Fours years of cotton varieties and new strains harvested mechanically, Curtis, La., 1952-55

Variety	Yield in pounds of lint per acre				Mechanical harvesting efficiency (per cent)				Grade			
	1952	1953	1954	1955	1952	1953	1954	1955	1952	1953	1954	1955
Deltapine 15	1091	1032	275	815	87.2	89	80	85	SLM	M	SLM	Mid. Lt. Sp.
Fox	1194	....	259	953	88.8	..	72	88	M	..	SLM	Mid. Sp.
Delfos 9169	....	....	260	773	....	..	78	83	..	..	SLM	Mid. Lt. Sp.
Louisiana DS 524-9	....	1250	243	835	....	88	68	85	..	M	SLM	LM
Plains	....	....	239	690	....	..	61	88	..	..	SLM	Mid. Lt. Sp.
Coker 100 WR	....	....	236	590	....	..	67	79	..	..	SLM	Mid. Lt. Sp.
Empire	....	....	214	830	....	..	60	87	..	..	SLM	LM
Stoneville 2B	....	....	166	698	....	..	63	78	..	..	SLM	Mid. Lt. Sp.
DES 7343	....	....	264	834	....	..	72	79	..	..	SLM	Mid. Lt. Sp.
Louisiana 33 x 14	....	....	241	716	....	..	79	73	..	..	SLM	Mid. Lt. Sp.
Delfos 9169-1348	....	....	236	....	....	..	73	..	..	..	SLM	
Louisiana DS 518-3	....	....	274	....	....	..	73	..	..	..	SLM	
Louisiana DS 523-7	....	....	215	....	....	..	71	..	..	..	LM	
Louisiana DS 523-9	....	910	209	....	....	79	65	..	..	M	SLM	
Louisiana DS 518-11	1146	1218	....	....	84.6	83	..	..	M	M		
Louisiana DS 5248-14	....	1181	....	....	....	74	..	..	..	M		
Louisiana DS 5243-1	....	1164	....	....	....	84	..	..	..	M	....	....
Louisiana DS 5243-5	....	1155	....	....	....	87	..	..	..	M	....	....
Louisiana DS 5232-9	....	1149	....	....	....	83	..	..	..	M	....	....
Louisiana DS 518-12	1192	1125	....	....	87.4	80	..	..	SLM	M	....	....
Louisiana DS 5241-3	....	1122	....	....	....	88	..	..	..	M	....	....
Louisiana DS 5252-12	....	1073	....	....	....	91	..	..	..	M	....	....
Louisiana DS 518-16	1292	1034	....	....	88.0	76	..	..	SLM	M	....	....
Louisiana DS 5216-3	....	997	....	....	....	80	..	..	..	M	....	....
Louisiana DS 2550-1	....	827	....	....	....	60	..	..	..	M	....	....
Stoneville 5A-3202	....	....	....	801	....	..	..	83	..	..	....	Mid. Lt. Sp.
Bobshaw 1-A	....	....	....	798	....	..	..	88	..	..	....	Mid. Lt. Sp.
Dixie King	....	....	....	746	....	..	..	80	..	..	....	Mid. Lt. Sp.
Auburn 56	....	.....	....	688	....	..	..	79	..	..	....	Mid. Lt. Sp.
Deltapine 8389-D-521	1345	....	....	....	88.0	..	..	..	LM+	..	....	....
Deltapine 15-8129	1292	....	....	....	85.5	..	..	..	SLM	..	....	....
Louisiana DS 517-39	1207	....	....	....	89.0	..	..	..	M	..	....	....

(*Continued*)

TABLE 12 (Continued).—Four years of cotton varieties and new strains experiments harvested mechanically, Curtis, La., 1952-55

Variety	Yield in pounds of lint per acre				Mechanical harvesting efficiency (per cent)				Grade			
	1952	1953	1954	1955	1952	1953	1954	1955	1952	1953	1954	1955
Deltapine 15-757	1074	....	....	....	86.6	..	..	..	M	..	....	....
Deltapine 14-51	1030	....	....	....	83.0	..	..	..	SLM	..	....	....
Mean lint per acre	1186	1088	238	769	....							
Difference required for significance	97	146	*	74								

* Difference not significant.

The number of varieties and strains that could be evaluated in a mechanical harvesting experiment has been limited owing to the plot size required. Most of the varieties responded in a similar manner in their efficiency for harvesting and grade for any particular year. The results indicate that, on the average, 10 to 15 per cent of the cotton will be left in the field; however, when severe drouth occurs, the amount left by the machine may be as high as 25 per cent. A large portion of the cotton left in the field, however, is faulty or damaged bolls.

NORTH LOUISIANA EXPERIMENT STATION TESTS

R. S. Woodward, *Superintendent*

Cotton Variety Averages of Tests, 1951-55, Calhoun, La.

These tests were conducted on the North Louisiana Experiment Station at Calhoun, La. They were located on well-drained Orangeburg sandy texture type soil. The soil is highly productive in years of ample rainfall. The tests received 600 pounds of 6-8-8 fertilizer in 1951; 600 pounds of 6-8-8 fertilizer in 1952; 600 pounds of 8-8-8 fertilizer in 1954; and 500 pounds of 8-8-8 fertilizer in 1955.

The Calhoun area receives, as an average, 21.08 inches of rainfall during the months of April through August. In 1951 the station received approximately 36 per cent below average; in 1952, 38 per cent below average; in 1954, 23 per cent below average; and in 1955, 23 per cent above average. The highest average acre yield was made in the year in which the rainfall was 23 per cent above average.

TABLE 13.—Rainfall data, April through August, Calhoun, La., 1951-55

Year	Months					Total 5-month departure
	April	May	June	July	August	
1951	3.03	1.18	3.82	3.77	1.66	−7.62
1952	5.32	3.39	0.60	2.22	1.48	−8.07
1954	3.37	9.76	0.12	1.90	0.23	−4.82
1955	5.46	7.55	3.49	6.12	2.42	+4.84
Monthly average	4.90	4.75	3.52	4.43	3.48	—

The tests were planted on May 1, 1951; on May 5, 1952; on April 20, 1954; and on April 19, 1955. Two plants were spaced approximately 16 inches apart in the row. Empire, Fox, Delfos 9169, Deltapine 15, Plains and Stoneville 5A-3202 were the leading varieties, as an average, of the nine varieties in the four-year comparison.

TABLE 14.—Four-year averages for cotton varieties tested on the North Louisiana Experiment Station, Calhoun, La., 1951-55

Variety	Yield in pounds of lint per acre				4-year average			
	1951	1952	1954	1955	Lint per acre	Lint per cent	Staple length in 1/32"	No. bolls per pound
Empire	549	615	392	1047	651	36.7	34	62
Fox	579	540	332	1060	628	36.3	34	89
Delfos 9169	682	611	355	864	627	35.4	35	73
Deltapine 15	603	561	322	963	612	38.5	34	81
Plains	523	591	328	990	608	36.5	34	73
Stoneville 5A-3202	554	565	380	916	604	37.1	34	80
Bobshaw 1-A	515	633	323	899	592	35.9	34	84
Stoneville 2B	589	544	366	787	572	35.2	34	72
Coker 100 WR	471	513	278	938	550	34.9	34	77
Mean lint per acre	563	575	342	940	605			
Difference for significance	78	*	47	118	40			

*Difference not significant.

TABLE 15.—Mean yields by years and estimated adjusted* average acre yield of lint of cotton varieties grown less than four years on North Louisiana Experiment Station, Calhoun, La., 1951-55

Variety	Yield in pounds of lint per acre						Average		
	1951	1952	1954	1955	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	No. bolls per pound
Correction factors	+ 42	+ 31	+263	−336					
Louisiana DS 518-12	....	....	....	1144	1144	808	40.9	33	72
Early Fluff	623	....	....	....	623	665	34.8	35	76
Paula 40	621	....	....	....	621	663	38.4	36	71
Dixie King	....	....	....	983	983	647	37.4	34	52
Louisiana DS 518-9	....	....	....	981	981	645	40.4	34	67
Louisiana 33 x 14	....	....	286	1068	677	640	38.0	34	77
Louisiana DS 524-9	....	....	312	1039	676	639	38.6	34	87
Smith 78	592	....	....	....	592	634	33.4	36	73
Delfos 9169-3316	585	....	....	....	585	627	36.0	37	71
Deltapine 8389	576	....	....	....	576	618	38.1	35	80
Delfos 9169-1348	....	....	346	934	640	604	34.6	34	75
Paula 20	561	....	....	....	561	603	32.4	36	72
DES 7343	....	584	....	925	754	602	39.0	33	78
Auburn 56	564	564	....	....	564	600	35.0	34	74
Stonewilt	536	579	....	....	558	594	35.0	34	76
Louisiana DS 5240-5	....	....	317	936	626	590	38.3	34	85
Stoneville 2B-5235	543	....	....	....	543	585	32.9	36	70
Louisiana DS 5219-2	....	....	359	881	620	584	37.1	33	83
Miller A	538	555	....	....	546	583	35.9	33	74
Louisiana DS 523-9	....	....	322	913	618	581	36.0	34	74
Louisiana 33	487	601	286	....	458	570	36.6	34	80
DES 8274	....	534	....	....	534	565	38.5	34	83
Coker 100 Staple	551	503	....	....	527	564	34.4	36	79
Pandora	492	....	....	....	492	534	34.7	36	71
Louisiana DS 523-7	....	....	252	784	518	482	35.8	34	88
Deltapine Staple	....	....	....	800	800	464	36.3	35	65

* Estimated adjusted mean yields. The average acre yield of Louisiana 33 x 14, for example, was obtained as follows: (286 + 263) + (1068 − 336) /2 = 640.

NORTH LOUISIANA HILL FARM EXPERIMENT STATION TESTS

D. M. JOHNS, *Superintendent*

Cotton Variety Averages of Tests, 1951-54, Homer, La.

The tests at Homer were conducted on the North Louisiana Hill Farm Experiment Station approximately three miles south of Homer, La. The tests were located on well-drained Ruston type soil.

The tests received 600 pounds of 6-8-8 fertilizer in 1951; 800 pounds of 8-8-8 fertilizer in 1952; 600 pounds of 8-8-8 fertilizer in 1953; and 600 pounds of 8-8-8 fertilizer in 1954.

The Homer area receives, as an average, 21.16 inches of rainfall from April through August. The Minden, La., weather station (the closest long-time weather records) reported rainfall approximately 36 per cent below average in 1951; 27 per cent below average in 1952; 44 per cent below average in 1953; and 24 per cent below average in 1954.

TABLE 16.—Rainfall data, April through August, Minden, La., 1951-54

Year	Months					Total 5-month departure
	April	May	June	July	August	
1951	2.38	1.90	5.14	2.80	1.55	—7.78
1952	6.07	5.16	1.56	1.69	1.21	—5.86
1953	12.17	10.11	0.29	0.27	3.03	—9.42
1954	4.27	7.07	1.25	0.14	1.99	—5.25
Monthly average	5.01	4.86	3.28	4.60	3.80	

The tests were planted on April 23, 1951; on May 31, 1952; on April 20, 1953; and April 20, 1954. Two plants per hill were spaced 16 inches apart in the row.

Fox, Plains, Stoneville 2B, Stoneville 5A-3202, Empire and Coker 100 were the leading varieties, as an average, of the nine varieties in the four-year comparison.

TABLE 17.—Four-year averages for cotton varieties tested on the North Louisiana Hill Farm Experiment Station, Homer, La., 1951-54

Variety	Yield in pounds of lint per acre				4-year average			
	1951	1952	1953	1954	Lint per acre	Lint per cent	Staple length in 1/32"	No. bolls per pound
Fox	334	297	501	201	333	35.8	33	96
Plains	329	266	454	203	313	35.7	33	91
Stoneville 2B	352	245	415	173	296	34.4	33	87
Stoneville 5A-3202	300	254	450	177	295	36.8	34	94
Empire	314	241	424	141	280	35.7	33	80
Coker 100 WR	332	254	364	166	270	34.1	33	91
Bobshaw 1-A	349	259	356	146	277	34.6	33	98
Deltapine 15	331	218	373	173	273	37.9	33	99
Delfos 9169	303	191	374	146	253	34.6	34	87
Mean lint per acre	327	247	412	170	289			
Difference for significance	76	*	*	38	35			

*Difference not significant.

TABLE 18.—Mean yields by years and estimated adjusted* average acre yield of lint cotton varieties grown less than four years on the North Louisiana Hill Farm Experiment Station, Homer, La., 1951-54

Variety	Yield in pounds of lint per acre						Average		
	1951	1952	1953	1954	Ave.	Corrected average	Lint per cent	Staple length in 1/32"	** No. bolls per pound
Correction factors	− 38	+ 42	−123	+119					
Louisiana 33 x 14	....	....	592	141	367	365	39.4	33	89
Louisiana DS 524-9	....	....	..	208	208	327	39.1	33	91
Louisiana 33	341	258	496	....	365	325	36.5	33	95
Delfos 9169-3316	355	....	..	....	355	317	34.2	34	..
Stonewilt	348	250	....	....	299	301	33.9	33	90
Pandora	339	....	....	....	339	301	36.7	33	..
Miller A	316	243	434	.. .	331	291	34.9	31	90
Louisiana DS 5219-2	....	....	....	163	163	282	35.6	32	89
Auburn 56	293	267	....	....	280	282	33.3	33	99
Smith 78	317	....	....	....	317	279	36.0	34	..
Louisiana DS 523-7	....	....	....	151	151	274	34.9	33	97
Paula 20	310	....	....	....	310	272	33.6	34	..
Louisiana DS 523-9	....	....	....	148	148	267	36.2	32	87
Louisiana DS 5240-5	...	....	....	146	146	265	39.2	32	101
Coker 100 Staple	279	243	313	....	302	262	33.8	35	95
Delfos 9169-1348	....	....	....	142	142	261	35.8	32	87
DES 7343	....	177	423	....	300	260	36.6	33	100
DES 7284	....	216	....	....	216	258	33.5	34	111
Stoneville 2B-5235	270	....	....	....	270	232	33.8	34	..
Paula 40	243	....	....	....	243	205	36.9	34	..

*Estimated adjusted mean yields. The average yield of Louisiana 33 x 14, for example, was obtained as follows: (592 − 123) + (141 + 119) /2 = 447.

**No boll size data were collected in 1951.

STATE AVERAGES FOR NINE LEADING VARIETIES

The data for the nine varieties Fox, Delfos 9169, Plains, Deltapine 15, Stoneville 5A-3202, Empire, Coker 100 WR, Stoneville 2B and Bobshaw 1-A have been analyzed statistically at the five stations in yield of lint per acre. It was found that the varieties responded in a different manner at the five stations and these differences were significant. The analysis also indicates that these station yield averages were highly influenced by environmental conditions and the varieties may change their rank in yield in any future summary.

TABLE 19.—State averages of lint per acre for nine commercial varieties at Baton Rouge, St. Joseph, Curtis, Calhoun and Homer, La.

Vaviety	Average yield in pounds of lint per acre				
	5-year average		4-year average		
	Baton Rouge	St. Joseph	Curtis	Calhoun	Homer
Fox	655	1007	778	628	333
Delfos 9169	596	1073	769	627	253
Plains	641	1054	686	608	313
Deltapine 15	646	1079	692	612	273
Stoneville 5A-3202	631	1091	655	604	295
Empire	577	939	724	651	280
Coker 100 WR	659	969	665	550	279
Stoneville 2B	565	958	652	572	296
Bobshaw 1-A	561	985	604	592	277

Data show that Fox, Plains and Deltapine 15 ranked relatively higher than the other six varieties in yield of lint per acre. Deltapine 15 and Stoneville 5A-3202 produced, on the average, higher lint per cent; Empire and Delfos 9169 had larger bolls; and Delfos 9169 produced longer fiber. Plains, Empire and Coker 100 WR were resistant to fusarium wilt.